

Case Report



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A Rare but Preventable Injury: Surgical Management of Traumatic Achilles Tendon Tear Caused by Glass-coated Kite String (Chinese Manja) in a Child - A Case Report

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Abstract

Introduction: Acute traumatic Achilles tendon tear is very uncommon in the pediatric population. This injury is particularly important in the current era due to the increasing and widespread use of glass-coated kite strings (manja). The Achilles tendon lies superficially with minimal soft-tissue protection, making it particularly vulnerable to sharp kite string injuries. This case highlights the rarity of this injury pattern, an emerging and preventable cause of trauma in developing countries, and its effective surgical management.

Case Report: We report the case of a 12-year-old male who sustained a traumatic distal Achilles tendon laceration near its insertion after a glass-coated kite string became entangled around his ankle while running. This resulted in a deep wound over the Achilles tendon with complete transection. The patient was successfully treated with primary tendon repair using non-absorbable sutures with the Krackow technique following thorough wound irrigation and debridement.

Conclusion: Traumatic Achilles tendon laceration caused by kite string injury is a rare but preventable serious condition. Early recognition and timely surgical intervention are crucial. Primary repair using non-absorbable sutures with the Krackow technique provides strong tendon approximation, promotes early healing, and effectively restores tendon continuity when combined with meticulous wound irrigation and debridement.

Keywords: Traumatic tendoachilles, pediatrics.

Introduction

Achilles tendon injuries are common in adults, and extensive literature exists describing their characteristics and management. However, such injuries are rare in the pediatric population, resulting in limited published data. Therefore, we aimed to describe the injury presentation, treatment, and outcome in a pediatric patient with a complete Achilles tendon injury [1]. Kite flying is a popular recreational activity in the Indian subcontinent, especially during winter festivals. To cut opponents' kites, participants often coat their strings with glass and adhesive substances, commonly known as manja, rendering them extremely sharp. In recent times, chemically treated or so-called Chinese manja, made from non-biodegradable synthetic fibers, has become increasingly prevalent.

Consequently, injuries caused by kite strings are on the rise, affecting not only kite flyers but also unsuspecting pedestrians, particularly in densely populated areas. Kite string injuries resulting in complete transection of major structures such as arteries, nerves, or the Achilles tendon are extremely rare and sparsely reported in the literature [2]. Management of such injuries requires prompt recognition, early surgical repair, meticulous wound care, and careful assessment of neurovascular involvement. This report describes a case of Achilles tendon transection caused by a

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Figure 1: Pre-operative clinical photograph showing an open posterior ankle wound with clear visualization of the completely transected Achilles tendon, demonstrating two distinct and separated tendon ends.

kite string injury and its surgical management. This article aims to highlight the hazards of manja, particularly Chinese manja, and to emphasize that such wounds may appear deceptively benign while concealing significant underlying damage [3].

Materials and Methods

Patient information

A 12-year-old male child with no significant past medical history presented to the emergency department following a traumatic injury to the posterior aspect of the ankle sustained during a kite-flying-related incident.

Clinical findings

The patient was riding a bicycle when he noticed a falling kite and began running to retrieve it. During this activity, a glass-coated manja became tightly entangled around his ankle. The child continued to move forward, assuming the string would break; however, due to the high tensile strength and abrasive nature of the manja, it failed to rupture and instead caused a deep incised wound over the posterior ankle, resulting in complete transection of the Achilles tendon. On clinical examination, a 4 × 2 cm open wound was noted over the Achilles tendon region with gross visualization of the completely ruptured tendon (Fig. 1). The Thompson test was positive.

Diagnostic assessment

The diagnosis of an open Achilles tendon rupture was established based on clinical findings, including direct visualization of the tendon ends and a positive Thompson test.

Therapeutic intervention

The wound was immediately irrigated and debrided. Intravenous broad-spectrum antibiotics and tetanus

prophylaxis were administered on presentation. The patient was taken to the operating room the following morning. Under general anesthesia, the patient was placed in the prone position. The wound was again thoroughly irrigated and debrided. A longitudinal incision incorporating the traumatic wound was made over the length of the Achilles tendon (Fig. 2). Both tendon ends were identified, and fresh margins were created. The proximal tendon end was mobilized to allow adequate approximation. A non-absorbable polyester suture was used to repair the tendon employing the Krackow technique (Fig. 3). The free suture ends were tied securely, and tendon continuity was confirmed by assessing plantarflexion and dorsiflexion without gapping (Fig. 4). The wound was closed in layers, and a below-knee

plaster cast was applied with the ankle maintained in plantarflexion. The patient was discharged with oral antibiotics due to the open nature of the wound and advised to undergo regular follow-up. At 4 weeks postoperatively, the cast was removed, and the patient was transitioned to a walking boot with a heel raise to maintain relative plantarflexion. Gradual weightbearing was initiated as tolerated, followed by progressive range-of-motion and strengthening exercises. At subsequent follow-ups, the patient demonstrated satisfactory



Figure 2: Exposure/debridement of the tendon ends only



Figure 3: The actual Krackow suture replacement

wound healing and functional recovery.

Discussion

Achilles tendon rupture is rare in the pediatric population due to the inherent elasticity and tensile strength of the tendon. When such injuries occur in children, they are most commonly associated with penetrating or sharp trauma rather than degenerative or sports-related mechanisms. Kite string-related injuries represent a unique and preventable cause of trauma, particularly in regions where kite flying is culturally prevalent [4]. Modern kite strings, especially those coated with glass or synthetic materials (manja), can function as sharp cutting instruments when placed under tension. Recent studies have reported a persistent rise in severe kite string-related injuries, most frequently involving exposed areas such as the neck, face, and upper limbs [4, 5]. Lower-limb involvement remains uncommon, and complete transection of the Achilles tendon due to kite string injury in a child is exceedingly rare, making the present case clinically significant. Posterior ankle lacerations caused by kite strings may appear deceptively superficial, increasing the risk of missed Achilles tendon injury. Recent pediatric trauma literature emphasizes that penetrating wounds around the ankle require meticulous wound exploration and careful assessment of tendon integrity to prevent delayed diagnosis and long-term functional impairment [6]. Early surgical intervention is recommended in

open Achilles tendon injuries due to the contaminated nature of such wounds. Prompt irrigation, thorough debridement, and primary tendon repair provide optimal conditions for healing. Pediatric patients demonstrate excellent healing potential when early repair is performed. Post-operative immobilization in plantarflexion, followed by gradual rehabilitation, helps protect the repair and restore function. From a public health perspective, kite string injuries remain a largely preventable cause of serious morbidity. Recent public health and trauma studies stress the importance of regulating hazardous kite strings, implementing public awareness campaigns, and ensuring parental supervision to reduce the incidence of these injuries, particularly among children [5, 7].

Conclusion

Kite string-related injuries can result in severe and easily overlooked musculoskeletal trauma, particularly in children. This case highlights a rare but serious open distal Achilles tendon laceration caused by a kite string, which was successfully managed with prompt wound debridement and primary tendon repair using a non-absorbable suture with the Krackow technique. Early surgical intervention, appropriate immobilization in plantarflexion, and structured post-operative rehabilitation resulted in satisfactory healing and a good functional outcome. Increased public awareness and preventive measures are essential to reduce such avoidable injuries associated with kite strings (manja)



Figure 4: Final intraoperative photograph demonstrating approximation of the proximal and distal ends of the Achilles tendon after tying the non-absorbable sutures, achieving secure end-to-end repair with restoration of tendon continuity.

References

1. Ashebo LB, Stevens AC, MacAlpine EM, Wittstein JR, Bradley KE, Lawrence JT. Achilles tendon injuries in the pediatric population. *J Pediatr Orthop* 2023;43:e513-8.
2. Singh D, Aryala S. Kite string injury: An unusual cause of extensive ankle trauma with vascular injury. *Indian J Vasc Endovasc Surg* 2022;9:319-21.
3. Singh RK, Kumar V, Mishra B, Halagiri SM, Singh A. Kite string (manja) injury: Rare presentations of common entity leading to disability. *Acta Sci Surg Res* 2022;1:10-2.
4. Bansal A, Goyal S, Kumar A. Kite string (manjha) injuries in children: An ongoing and preventable public health problem. *Injury* 2022;53:3550-6.
5. Sharma R, Sodhi KS, Khandelwal N. Pattern and severity of kite string injuries during festive seasons: A recent trauma center experience. *Indian J Pediatr* 2023;90:356-61.
6. Patel NM, Ganley TJ. Evaluation and management of acute Achilles tendon injuries in children and adolescents. *J Pediatr Orthop* 2022;42:e820-6.
7. Verma A, Singh V, Gupta P. Kite string injuries as a preventable cause of pediatric trauma: Need for stricter regulation and awareness. *J Fam Med Prim Care* 2024;13:890-5.

Declaration of patient consent : The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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